

Independent claim (one and only) of Japanese Kokai 5-237120

Title: Biopsy forceps for endoscope

Biopsy forceps for endoscope characterized as having a fixed collection piece that is a scoop-tip like tongue provided so as not to be turned in the front end part of the tip main body of biopsy forceps for an endoscope and in whose front edge part is formed toward the front a blade;

a rotating take-up piece that is a cup-shaped rotating tongue attached to the aforementioned tip main body so as to open and close freely like a beak against the aforementioned fixed collecting piece;

and an opening and closing mechanism that rotates the aforementioned rotating take-up piece by remote control and causes the aforementioned rotating take-up piece to open and close like a beak against the aforementioned fixed take-up piece.

## BIOPSY FORCEPS FOR ENDOSCOPE

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Inventor(s): SANO HIROSHI  
Applicant(s): ASAHI OPTICAL CO LTD  
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EC Classification:  
Equivalents: JP3076658B2

### Abstract

**PURPOSE:** To provide a biopsy forceps for an endoscope, which can collect surely a biopsy tissue being an inspection specimen having a good quality without putting it onto a lesion from the front.  
**CONSTITUTION:** The biopsy forceps for an endoscope is provided with a fixed collecting piece 5 which is a shovel tip-like tongue provided so as not to be turned in the front end part of the tip main body 3 of the biopsy forceps for an endoscope and in which a blade 6 is formed toward the front in its front edge part, a turning collecting piece 8 which is a cup-like turning piece attached to the tip main body 3 so as to be freely openable/closeable like a beak against the fixed collecting piece 5 and in which a blade 10 is formed in the edge part toward the direction opposed to the fixed collecting piece 5, and opening/closing mechanisms 15, 16 to be opened/closed like a beak against the fixed collecting piece 5 by turning the turning collecting piece 8 by a remote control.

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(71) 出願人 000000527

旭光学工業株式会社

東京都板橋区前野町2丁目36番9号

(72) 発明者 佐野 浩

東京都板橋区前野町2丁目36番9号 旭光

学工業株式会社内

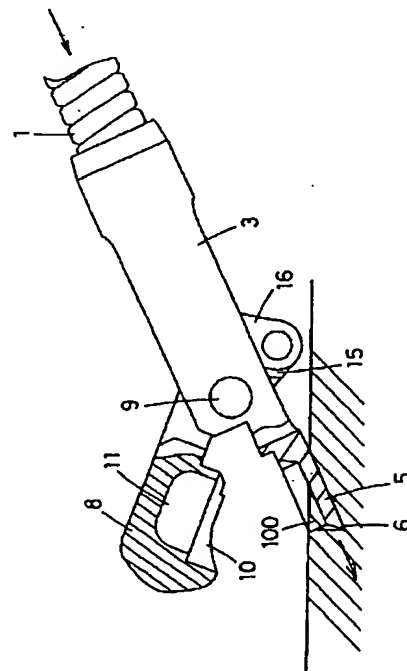
(74) 代理人 弁理士 三井 和彦

(54) 【発明の名称】 内視鏡用生検鉗子

(57) 【要約】

【目的】 患部に対して正面から当てなくても良質の検査標本になる生検組織を確実に採取することができる内視鏡用生検鉗子を提供することを目的とする。

【構成】 内視鏡用生検鉗子の先端本体3の前端部分に回転しないように設けられたスコップの先状の舌片であってその前縁部分に前方に向けて刃6が形成された固定採取片5と、上記固定採取片5に対して嚙状に開閉自在に上記先端本体3に取り付けられたカップ状の回転片であって上記固定採取片5と対向する方に向けて縁部に刃10が形成された回転採取片8と、遠隔操作によって上記回転採取片8を回転させて上記固定採取片5に対して嚙状に開閉させるための開閉機構15、16とを有する。



## 【特許請求の範囲】

【請求項1】内視鏡用生検鉗子の先端本体の前端部分に回転しないように設けられたスコップの先状の舌片であってその前縁部分に前方に向けて刃が形成された固定採取片と、

上記固定採取片に対して嚙状に開閉自在に上記先端本体に取り付けられたカップ状の回転片であって上記固定採取片と対向する方に向けて縁部に刃が形成された回転採取片と、

遠隔操作によって上記回転採取片を回転させて上記固定採取片に対して嚙状に開閉させるための開閉機構とを有することを特徴とする内視鏡用生検鉗子。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】この発明は、体腔内の生検組織を採取するために内視鏡の鉗子チャンネルに挿通して用いられる内視鏡用生検鉗子に関する。

## 【0002】

【従来の技術】従来の内視鏡用生検鉗子は、一般に、嚙状に開閉自在な一対の採取カップを先端に設け、採取カップを開いて患部に押し付けてから閉じることによって、生検組織を挟み切って採取カップ内に採取している。

## 【0003】

【発明が解決しようとする課題】上述のように採取カップを嚙状に閉じることによって生検組織を挟み切るためには、患部に対して採取カップを正面から押し当てる必要がある。

【0004】しかし、内視鏡の先端をそのような好位置に誘導するのが困難な場合が多くて、なかなか良い検査標本になるような組織採取をすることができない。また、患部の形状等によっては、採取カップを閉じて患部に対して採取カップが滑って患部を挟み切ることができない場合もある。

【0005】そこで一対の採取カップの間に針を設けて、この針を患部に突き刺してから生検組織の採取を行うようにした針付きの生検鉗子もある。しかし、針を付けても上述のような不具合が大幅に改善されるものでもなく、また、採取される組織部分を針で刺すことになるので、採取された生検組織に穴があいて検査標本としての質が低下してしまったり、時として針が折れて体腔内に落ちてしまう等の問題がある。

【0006】そこで本発明は、患部に対して正面から当てなくても良質の検査標本になる生検組織を確実に採取することができる内視鏡用生検鉗子を提供することを目的とする。

## 【0007】

【課題を解決するための手段】上記の目的を達成するため、本発明の内視鏡用生検鉗子は、内視鏡用生検鉗子の先端本体の前端部分に回転しないように設けられたスコ

ップの先状の舌片であってその前縁部分に前方に向けて刃が形成された固定採取片と、上記固定採取片に対して嚙状に開閉自在に上記先端本体に取り付けられたカップ状の回転片であって上記固定採取片と対向する方に向けて縁部に刃が形成された回転採取片と、遠隔操作によって上記回転採取片を回転させて上記固定採取片に対して嚙状に開閉させるための開閉機構とを有することを特徴とする。

## 【0008】

【実施例】図面を参照して実施例を説明する。図2、3及び4は内視鏡用生検鉗子の先端部分を示しており、図2は側面図、図3は底面図、図4はIV-IV断面図である。

【0009】図中1は、ステンレス鋼線を密着巻きして形成された可撓性のあるコイルパイプであり、例えば直径が約2mm、長さが約1.5m程度に形成されている。コイルパイプ1の先端には、中央部分にスリット2が穿設された先端本体3が連結固着されている。

【0010】先端本体3の前端部分には、スコップの先状の舌片状に形成された固定採取片5が、先端本体3と一体に固定的に形成されている。この固定採取片5は、図4に示されるように円弧状の断面に形成されていて、図2に示されるように、その前縁部分には前方に向けて刃6が形成されている。

【0011】8は、固定採取片5に対して嚙状に開閉自在に先端本体3に取り付けられたカップ状の回転片からなる回転採取片であり、先端本体3にリベット止めされた軸9を中心に回転することができる。

【0012】図4に示されるように、回転採取片8には、固定採取片5と対向する方に向けて外縁部に刃10が形成されており、その内部は、採取した組織片を収容するための組織片収容室11になっている。

【0013】図2に示されるように、コイルパイプ1内には、操作ワイヤ13が進退自在に挿通されている。この操作ワイヤ13は、コイルパイプ1の他端側に取り付けられた操作部（図示せず）からの遠隔操作によって進退操作される。

【0014】操作ワイヤ13の先端に連結されたピン14と、回転採取片8の後側に延出形成されたアーム15との間は、リンク16がリベット軸17、18によって連結されている。これらは、先端本体3に形成されたスリット2内に収められている。

【0015】したがって、操作ワイヤ13を操作部側から先端側に押し込むと、図5に示されるようにピン14に押されてリンク16とアーム15との連結角度が折れ曲がり、回転採取片8が開き方向に回転して、固定採取片5との間が嚙状に開く。

【0016】逆に、操作ワイヤ13を操作部側に引張ると、図2に示されるように、回転採取片8が固定採取片5に密接する閉じ状態になる。このように構成された内

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視鏡用生検鉗子を使用する際には、回動採取片8を閉じた状態で、この生検鉗子を内視鏡の鉗子チャンネルに挿通し、患部に向けて突き出す。

【0017】そして、回動採取片8を開いて、図1に示されるように、生検鉗子の先端を患部100に押し付ける。すると、固定採取片5の刃6が患部100に突き刺さって、患部100の組織片がスコップですくわれるように固定採取片5の内側へ取り込まれる。

【0018】そこで次に操作ワイヤ13を牽引して、図2に示されるように回動採取片8を閉じれば、固定採取片5内に取り込まれた組織が回動採取片8外縁の刃10によって周辺から切り取られて、組織片収容室11内に収容される。

【0019】したがって、その状態のまま生検鉗子を内視鏡の鉗子チャンネルから引き出せば、生検組織片の採取が終了する。

【0020】

【発明の効果】本発明の内視鏡用生検鉗子によれば、前方に向けて刃が形成された固定採取片を患部に突き刺すことによって、患部の組織片がスコップですくわれるよ

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うに固定採取片の内側に取り込まれ、その取り込まれた組織を回動採取片で周辺から切り取って採取するので、患部に対して正対していなくても狙った位置の組織を容易に採取することができ、しかも採取される組織に穴等もあかず、良質の検査標本になる生検組織を確実に採取することができる。

【図面の簡単な説明】

【図1】実施例の使用状態を示す側面断面図である。

【図2】実施例の閉状態の側面断面図である。

【図3】実施例の閉状態の部分断面底面図である。

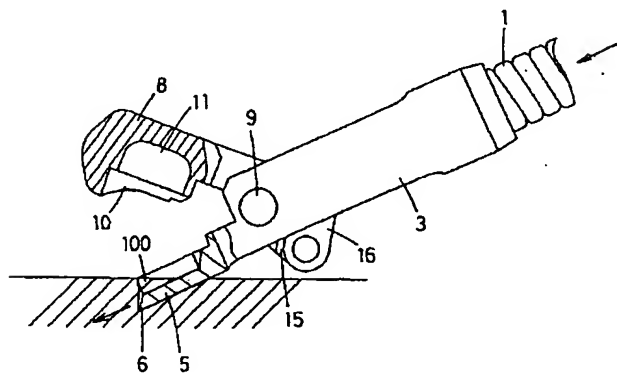
【図4】実施例のIV-IV断面図である。

【図5】実施例の開状態の側面断面図である。

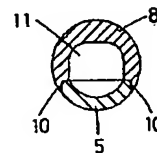
【符号の説明】

- 3 先端本体
- 5 固定採取片
- 6 刃
- 8 回動採取片
- 10 刃
- 15 アーム
- 16 リンク

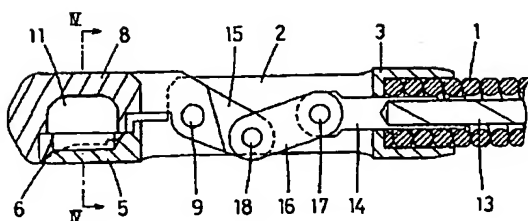
【図1】



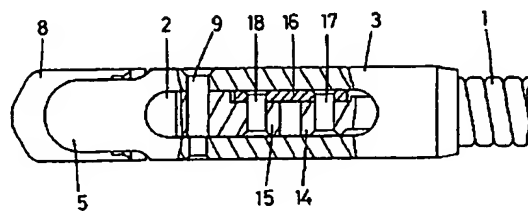
【図4】



【図2】



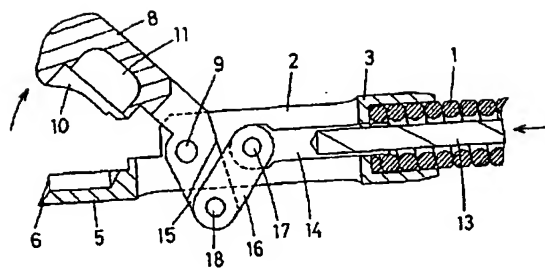
【図3】



(4)

特開平5-237120

【図5】



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## CLAIMS

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### [Claim(s)]

[Claim 1] The piece of fixed extraction which is a tongue-shaped piece of the shape of the point of a scoop established so that it might not rotate into the front end part of the tip body of the biptome for endoscopes and by which the cutting edge was formed in the first transition part towards the front, The piece of rotation extraction which is a piece of rotation of the shape of a cup attached in the above-mentioned tip body free [ the closing motion to the shape of a beak ] to the above-mentioned piece of fixed extraction and by which the cutting edge was formed in the edge towards the direction which counters with the above-mentioned piece of fixed extraction, The biptome for endoscopes characterized by having a breaker style for rotating the above-mentioned piece of rotation extraction, and making it open and close in the shape of a beak to the above-mentioned piece of fixed extraction by remote operation.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the biptome for endoscopes inserted in and used for the forceps channel of an endoscope, in order to extract the biopsy organization in a coelome.

[0002]

[Description of the Prior Art] By closing, after preparing the extraction cup of the pair which can be freely opened and closed in the shape of a beak at a tip, opening an extraction cup generally and pushing against the affected part, the conventional biptome for endoscopes has faced across a biopsy organization, and is extracting it in an extraction cup.

[0003]

[Problem(s) to be Solved by the Invention] In order to have faced across a biopsy organization by closing an extraction cup in the shape of a beak as mentioned above, it is necessary to press an extraction cup from a transverse plane to the affected part.

[0004] However, organization extraction to which it becomes an inspection sample difficult in many cases and very much good guiding the tip of an endoscope to such a good location cannot be carried out. Moreover, an extraction cup is slippery to the affected part, and inserting the affected part with the configuration of the affected part etc., even if it closes an extraction cup may be unable to be finished.

[0005] Then, a needle is formed between the extraction cups of a pair, and after thrusting this needle into the affected part, there is also a biptome with a needle which was made to extract the biopsy organization. However, even if it attaches a needle, the above faults are not improved sharply, either, since the organization part extracted will

be stabbed with a needle, a hole opens in the extracted biopsy organization, the quality as an inspection sample deteriorates, or a needle sometimes breaks and there is a problem of falling into a coelome.

[0006] Then, even if this invention does not guess from a transverse plane to the affected part, it aims at offering the biotome for endoscopes which can extract certainly the biopsy organization which becomes a good inspection sample.

[0007]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the biotome for endoscopes of this invention The piece of fixed extraction which is a tongue-shaped piece of the shape of the point of a scoop established so that it might not rotate into the front end part of the tip body of the biotome for endoscopes and by which the cutting edge was formed in the first transition part towards the front, The piece of rotation extraction which is a piece of rotation of the shape of a cup attached in the above-mentioned tip body free [ the closing motion to the shape of a beak ] to the above-mentioned piece of fixed extraction and by which the cutting edge was formed in the edge towards the direction which counters with the above-mentioned piece of fixed extraction, It is characterized by having a breaker style for rotating the above-mentioned piece of rotation extraction, and making it open and close in the shape of a beak to the above-mentioned piece of fixed extraction by remote operation.

[0008]

[Example] An example is explained with reference to a drawing. Drawing 2 , and 3 and 4 show a part for the point of the biotome for endoscopes, and drawing 2 is [ a bottom view and drawing 4 of a side elevation and drawing 3 ] IV-IV sectional views.

[0009] One in drawing is a coil pipe with the flexibility formed by carrying out the adhesion volume of the stainless steel line, for example, a diameter is formed in about 2mm and die length is formed in about 1.5m. Connection fixing of the tip body 3 with which the slit 2 was drilled at the tip of the coil pipe 1 by the central part is carried out.

[0010] The piece 5 of fixed extraction formed in tongue-shaped [ of the shape of the point of a scoop ] is formed in the front end part of the tip body 3 fixed at the tip body 3 and one. This piece 5 of fixed extraction is formed in the radii-like cross section as shown in drawing 4 , and as shown in drawing 2 , the cutting edge 6 is formed in that first transition part towards the front.

[0011] 8 is a piece of rotation extraction which consists of a piece of rotation of the shape of a cup attached in the tip body 3 free [ the closing motion to the shape of a beak ] to the piece 5 of fixed extraction, and can be rotated centering on the shaft 9 by which the rivet stop was carried out to the tip body 3.

[0012] As shown in drawing 4 , the cutting edge 10 is formed in the rim section towards the direction which counters the piece 8 of rotation extraction with the piece 5 of fixed extraction, and the interior has become the explant hold room 11 for holding the extracted explant.

[0013] As shown in drawing 2 , in the coil pipe 1, the actuation wire 13 is inserted in free [ an attitude ]. Attitude actuation of this actuation wire 13 is carried out by the remote operation from the control unit (not shown) attached in the other end side of the coil pipe 1.

[0014] The link 16 is connected with the rivet shafts 17 and 18 between the pin 14 connected at the tip of the actuation wire 13, and the arm 15 by which extension



formation was carried out at the backside [ the piece 8 of rotation extraction ]. These are stored in the slit 2 formed in the tip body 3.

[0015] Therefore, if the actuation wire 13 is stuffed into a tip side from a control unit side, as shown in drawing 5 , it will be pushed on a pin 14 and the connection include angle of a link 16 and an arm 15 will bend, the piece 8 of rotation extraction will rotate in the direction of an aperture, and between the pieces 5 of fixed extraction will open in the shape of a beak.

[0016] On the contrary, if the actuation wire 13 is pulled to a control unit side, as shown in drawing 2 , the piece 8 of rotation extraction will be in the closing condition close to the piece 5 of fixed extraction. Thus, in case the constituted bioptome for endoscopes is used, where the piece 8 of rotation extraction is closed, this bioptome is inserted in the forceps channel of an endoscope, and it projects towards the affected part.

[0017] And the piece 8 of rotation extraction is opened, and the tip of a bioptome is forced on the affected part 100 as shown in drawing 1 . Then, the cutting edge 6 of the piece 5 of fixed extraction is pierced in the affected part 100, and it is incorporated in the inside of the piece 5 of fixed extraction so that the explant of the affected part 100 may be saved with a scoop.

[0018] Then, next the actuation wire 13 is led, and if the piece 8 of rotation extraction is closed as shown in drawing 2 , with the cutting edge 10 of piece of rotation extraction 8 rims, the organization incorporated in the piece 5 of fixed extraction will be cut out from the circumference, and will be held in the explant hold room 11.

[0019] Therefore, if a bioptome is pulled out from the forceps channel of an endoscope with the condition, extraction of a biopsy explant will be completed.

[0020]

[Effect of the Invention] By thrusting into the affected part the piece of fixed extraction in which the cutting edge was formed towards the front according to the bioptome for endoscopes of this invention Since it is incorporated inside the piece of fixed extraction so that the explant of the affected part may be saved with a scoop, and the incorporated organization is cut out from the circumference and extracted by the piece of rotation extraction Even if it has not carried out a right pair to the affected part, the organization of the location aimed at can be extracted easily, a hole etc. does not open in the organization moreover extracted, but the biopsy organization which becomes a good inspection sample can be extracted certainly.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the side-face sectional view showing the busy condition of an example.

[Drawing 2] It is the side-face sectional view of the closed state of an example.

[Drawing 3] It is the partial cross-section bottom view of the closed state of an example.

[Drawing 4] It is the IV-IV sectional view of an example.

[Drawing 5] It is the side-face sectional view of the open condition of an example.

[Description of Notations]

3 Tip Body

5 Piece of Fixed Extraction

6 Cutting Edge

8 Piece of Rotation Extraction  
10 Cutting Edge  
15 Arm  
16 Link

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**PATENT ABSTRACTS OF JAPAN**

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(43)Date of publication of application : **17.09.1993**

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(51)Int.Cl. **A61B 10/00**

**A61B 1/00**

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(21)Application number : **04-041266** (71)Applicant : **ASAHI OPTICAL CO LTD**  
(22)Date of filing : **27.02.1992** (72)Inventor : **SANO HIROSHI**

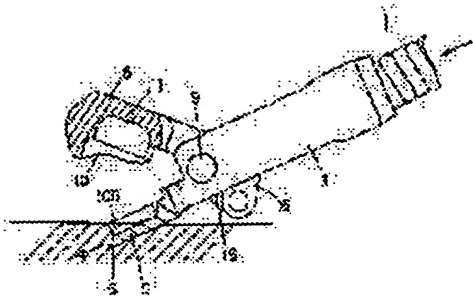
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**(54) BIOPSY FORCEPS FOR ENDOSCOPE**

(57)Abstract:

**PURPOSE:** To provide a biopsy forceps for an endoscope, which can collect surely a biopsy tissue being an inspection specimen having a good quality without putting it onto a lesion from the front.

**CONSTITUTION:** The biopsy forceps for an endoscope is provided with a fixed collecting piece 5 which is a shovel tip-like tongue provided so as not to be turned in the front end part of the tip main body 3 of the biopsy forceps for an endoscope and in which a blade 6 is formed toward the front in its front edge part, a turning collecting piece 8 which is a cup-like turning piece attached to the tip main body 3 so as to be freely openable/closeable like a beak against the fixed collecting piece 5 and in which a blade 10 is formed in the edge part toward the direction opposed to the fixed collecting piece 5, and opening/closing mechanisms 15, 16 to be opened/closed like a beak against the fixed collecting piece 5 by turning the turning collecting



piece 8 by a remote control.

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